

REMARKS/ARGUMENTS

Reconsideration and allowance of the above identified application is respectfully requested in light of the above amendments and the following remarks.

As summarized in a previous Amendment, the present invention relates to a method and apparatus for producing a high-strength and low-shrinkage synthetic flat yarn. After melt spinning, the filaments are combined to a yarn and drawn. Subsequently, the yarn is compressed to form a plug under the influence of heat. This plug is transported over a certain distance, so that the yarn relaxes in a low-tension state and under the influence of the increased temperature. Finally any crimp is removed from the plug under sufficient tension to form a high-strength, low shrinkage flat yarn, which is wound into a package.

The present invention avoids problems of high tension by providing a relaxation treatment which has a long dwelling time, and which is performed under low tension. In particular, the yarn, after being melt spun, cooled, and drawn, is fed into a relaxation device which is in the form of a heated stuffer box chamber. A significant dwelling time is achieved while the yarn is under no significant tension. The yarn is withdrawn from the relaxation device in a heated state and is under sufficient tension to remove any crimp and thus produce a typical flat yarn. The fact that a yarn stuffer box or crimping chamber can be used in a process to produce a non-crimped or flat yarn, is directly contrary to accepted practices and would not have been obvious to one skilled in the art.

In the Official Action, Claims 1-9 and 11-16 were rejected under 35 U.S.C. 112 as failing to comply with the written description requirement, as failing to comply with the enablement requirement, and as being indefinite, all based on the added "low plug density" language.

In response to these rejections, Applicant has amended independent Claims 1, 9, and 15 to remove the language "of low plug density".

In the Official Action, the Examiner also rejected Claims 1, 2, 5, 8, and 9 under 35 U.S.C. 103(a) as being unpatentable over Baader, DE 10100762 A1, in combination with Nelson, U.S. Patent No. 4,059,873. The Examiner rejected Claims 3, 4, 6, and 7 under 35 U.S.C. 103(a) as being unpatentable over Baader in combination with Nelson, and further in

view of Eskridge et al., U.S. Patent No. 4,095,317.

Baader discloses a method for melt spinning a multi filament yarn, which is designed to avoid high winding or packaging speeds in melt spinning installations having very high take-off speeds from the cooling stage. To achieve this objective, Baader teaches compacting the yarn to form a yarn plug in a stuffer box which may be supplied with heated air. The compacted yarn is withdrawn from the stuffer box and wound or packaged at a relatively low speed. As recognized by the Examiner, there is no teaching or suggestion in Baader of winding or packaging the yarn under sufficient tension to remove any crimp and thus form a flat yarn.

Nelson discloses a method of producing a heather yarn by compacting a plurality of crimped continuous filament yarns to the heather yarn without any twisting between the crimped continuous filament yarn.

Applicant respectfully submits that the combination of Baader and Nelson does not render the elements of independent Claims 1 or 9 obvious. Applicant further submits that the combination of Baader, Nelson, and Eskridge et al. does not render the elements of Claim 15 obvious. As a result, Claims 1-9 and 11-16 are patentable over the cited references.

In order for a claim to be rejected under 35 U.S.C. 103(a), all claim limitations must be taught or suggested by the cited references. *See* MPEP 2143.03. Applicant respectfully submits that the claim limitations of Claims 1, 9, and 15 are not taught by the cited references, even when they are considered collectively. As noted above, Baader does not teach removing crimp in the yarn during the slow speed winding of the yarn. This deficiency is not cured by Nelson. While Nelson “straightens-out” crimp in the feed yarns to remove entanglement between the filaments within each yarn, crimp is not removed from the yarns. In fact, Nelson refers to the crimped continuous filament heather yarn of the present invention as composing “a plurality of continuous filaments *which are yarn-to-yarn randomly intermingled* to form yarn-to-yarn blended areas ... [t]he yarn-to-yarn blended areas hold the crimped continuous filament yarns together to form the heather yarn.” *See* Nelson, col. 3, lines 11-25 (emphasis added).

Additionally, neither Baader nor Nelson nor Eskridge et al. teach or disclose forming an advancing *flat yarn*, as included in the claim recitations of independent Claims 1, 9, and

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15. As noted in the previous response to the Official Action dated June 28, 2006, “flat yarn” is a term having a precise meaning which is well understood by those skilled in man made fiber technology. By contrast, Baader produces a rope-shaped compact thread (*see generally*, description and Figs. 1-3), Nelson produces an intermingled heather yarn (*see* col. 5, lines 23-25), and Eskridge et al. produces “bulky yarns having a high degree of random crimp” (*see* col. 3, lines 7-12).

Even if the cited references were to be interpreted as teaching or disclosing the elements of Claims 1, 9, and 15, which Applicant hereby refutes, in order for a claim to be rejected under 35 U.S.C. 103(a) there must be a suggestion or motivation to modify the references. Furthermore, the proposed modification of references cannot change the principle of operation of the prior art invention being modified (i.e., the principal reference). *See* MPEP 2143.01. Applicant respectfully submits that removal of any crimp of the multifilament yarn of Baader would change its principle of operation of providing a compact, rope-shaped thread, which permits the winding speed to be reduced. *See generally* description and Figs. 1 – 3 (showing resulting compact, rope-shaped thread).

In summary, it is submitted that all of the pending claims are allowable over the art of record, and an early and favorable action is solicited.

Respectfully submitted,

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